

REMARKS

Claims 1-91 are pending in the above-captioned patent application after this amendment. Claims 9-11, 25-27, 41-43, and 52-54 are objected to as being dependent upon a rejected base claim, but were found to contain patentable subject matter. Claims 1-8, 12-24, 28-40, 44-51, and 55-58 were rejected. Claim 24 is objected to as being duplicative of claim 23. The Applicant respectfully traverses the rejection of claims 1-8, 12-24, 28-40, 44-51, and 55-58 and the objection of claims 9-11, 25-27, 41-43, and 52-54. Claim 23 has been amended to correct a typographical error, and new claims 59-91 have been added by this amendment for the purpose of expediting the patent application process in a manner consistent with the goals of the Patent Office pursuant to 65 Fed. Reg. 54603 (September 8, 2000).

Support for the amendment to claim 23 and to the new claims can be found throughout the originally filed application, including the originally filed claims, the drawings and the specification. More specifically, support for new claims 59-91 can be found at least in claims 1-58, in Figures 1A-7C, and in the specification at page 5, lines 13-28, at page 8, lines 4-12, at page 9, lines 27-33, at page 20, line 8 through page 21, line 10, at page 23, line 3 through page 24, line 33, and at page 25, line 18 through page 29, line 22.

Further, the drawings have been objected to as failing to comply with 37 CFR 1.84(p)(4). Formal drawings, which include corrections to the previously submitted drawings are provided herewith, and are believed to be in compliance with 37 CFR 1.84(p)(4).

No new matter is believed to have been added by this amendment. Consideration of the Application is respectfully requested.

Objections to the Drawings

The Examiner has objected to the drawings. Formal drawings including amendments in response to the Examiner's objection are submitted herewith which are believed to be in compliance with 37 CFR 1.84(p)(4). Therefore, the objection to the drawings is believed to have been overcome.

Objections to the Claims

Claim 24 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 23. Claim 23 has been amended as provided above. Accordingly, the Applicant submits that claim 24 is not duplicative of claim 23. Therefore, the objection is believed to have been overcome.

Further, claims 9-11, 25-27, 41-43, and 52-54 are objected to as being dependent upon a rejected base claim, but were found to contain patentable subject matter. As provided below, the Applicant submits that because the base claims are believed to be patentable, claims 9-11, 25-27, 41-43, and 52-54 are likewise believed to be patentable, and the objection should be withdrawn.

Rejections Under 35 U.S.C. § 103

Claims 1-8, 12-24, 28-40, 44-51, and 55-58 have been rejected under 35 U.S.C. § 103 as being unpatentable over Kojima et al. (US 5,446,722), and further in view of Shamouilian et al. (US 5,592,358) or Fu (US 5,876,576). The Applicant respectfully traverses the rejection of claims 1-8, 12-24, 28-40, 44-51, and 55-58 on the grounds that the references do not provide a motivation or suggestion to combine the features of the cited references. Additionally, the cited references are nonanalogous art and are therefore improper prior art references. Moreover, the cited combination of references does not teach or suggest the features of many of the rejected claims. Consequently, the Applicant respectfully submits that the rejection of claims 1-8, 12-24, 28-40, 44-51, and 55-58 should be withdrawn, and that these claims should be allowed.

Claims 1-8, 12-24, 28-40, 44-51, and 55-58 are patentable over the cited combination of references because as provided below there is no motivation to use either the sputtering system taught by Fu, or the magnetic shunt taught by Shamouilian et al. in the recording apparatus described in Kojima et al. "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991; Emphasis added). In the present case, neither is found.

Even if the combination of references taught every element of the claimed

invention (which it does not), without a motivation to combine, a rejection based on a prima facie case of obviousness has been held improper. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). Further, the “mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990; emphasis original and added). In the present case, the prior art does not clearly suggest the desirability of the resultant combination. In the present case, the prior art does not clearly suggest the desirability of the resultant combination.

Kojima et al. is directed toward an information recording apparatus for making replicas of recording media such as optical disks, i.e. copying compact disks and laser disks. (Col. 1, lines 7-10). The information recording apparatus includes a motor 14 that rotates a turn table 4 which carries a master disk. Kojima et al. explicitly provides that the motor 14 is enclosed in a magnetic shield means so that an electron beam can irradiate the surface of the master disk mounted on the turn table. (Col. 4, lines 28-34). Importantly, “since the motor 14 is enclosed in the magnetic casing 13, there is no fear that the magnetic fields of the motor 14 affect the electron beam”. (Col. 4, lines 38-40; emphasis added). Further, the magnetic casing 13 completely prevents “the magnetic fields of the electric motor 14 from leaking outward.” (Col. 4, lines 9-11).

Fu is directed toward a sputtering system 300 for sputtering magnetic target material that includes a magnetron and a magnetic shunt 428. (Col. 4, lines 38-41; Col. 6, line 55 through Col. 7, line 3). The magnetic shunt is positioned where excessive target erosion is expected to avoid a “pinching phenomenon.” (Col. 4, lines 46-48; Col. 6, lines 51-54). The pinching phenomenon results in an increase of the erosion rate along the center of a tunnel, which causes a deep spike-like erosion groove in the target. (Col. 3, lines 10-38). Fu teaches a more efficient use of target materials by using the magnetic shunt within a moving magnet sputtering source. (Col. 3, lines 39-50; Col. 4, lines 38-41). Typically, as the target erodes, the magnetic flux above the eroded portion of the target increases. (Col. 6, line 55 through Col. 7, line 7). However, Fu uses a shunt to more efficiently utilize the target, and for sputtering to be more uniform across the target surface. (Col. 7, lines 57-59).

Shamouilian et al. is directed toward an electrostatic chuck 20 and a magnetic shunt 34 that is used to obtain more uniform processing of a substrate 42 held by the chuck 20 during etching. (Col. 6, lines 25-43). Specifically, the shunt 34 is used to provide a more uniform etch rate across the substrate surface, and more uniform heat transfer from the substrate 42 to a support 44, resulting in more uniform temperatures across the surface of the substrate 42. (Col. 6, lines 25-43). Shamouilian et al. teaches using the shunt to “preferentially concentrate ferromagnetic material toward the periphery of the substrate 42” to promote a more uniform etching of the substrate 42. (Col. 7, lines 19-23).

As provided above, Kojima et al. already completely prevents the magnetic fields of the electric motor from leaking toward the electron beam. Therefore, there is no suggestion in Kojima et al. to add a magnetic shunt taught by Fu or Shamouilian et al. to the recording apparatus of Kojima et al. In fact, the complete prevention of leaking of magnetic fields taught by Kojima et al. suggests the opposite result. That is, there is no clear benefit of combining the cited references, because no such magnetic shunt is necessary due to the fact that there is already no fear that the magnetic fields of the motor will affect the electron beam as taught by Kojima et al. Stated another way, one skilled in the art of recording apparatuses reading Kojima et al. would not be motivated to seek a method for directing magnetic flux with a magnetic shunt during a sputtering or etching process. Consequently, there is no motivation to combine the recording apparatus taught by Kojima et al. with the sputtering or etching processes disclosed in Fu or Shamouilian et al.

Moreover, the Patent Office has relied on nonanalogous art in its rejection. The Patent Office states that “722 does not explicitly mention the use of such a magnetic shunt, but 358 and 576 teach a magnetic shunt that attracts the magnetic flux, causing depletion of the magnetic flux above those portions of the substrate, and provides an alternative path for the flux (See 358, col. 4, lines 25-33 and 576, col. 4, lines 48-53). They both teach this magnetic shunt used in conjunction with semiconductor fabrication (See 358, col. 1, line 9, and 576, col. 1, lines 12-18).” The Applicant respectfully disagrees with the analysis of the Patent Office because although Fu and Shamouilian et al. can be used during semiconductor fabrication, the process of semiconductor fabrication taught by Fu and Shamouilian et al. is a completely separate, non-related aspect of such fabrication

from that of the present invention. Fu and Shamouilian et al. teach methods used during sputtering and/or etching processes, not during exposure using an optical assembly. Thus, the rejection by the Patent Office under 35 U.S.C. §103(a), which is based on Fu or Shamouilian et al. is improper because a skilled artisan in the field of exposure apparatuses using stage assemblies would not be expected to search nonanalogous art such as Fu or Shamouilian et al., which involve sputtering and/or etching processes.

The Federal Circuit has stated that nonanalogous art is inadmissible evidence of whether or not an invention was obvious under 35 U.S.C. §103(a). *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). The determination of whether prior art is analogous involves determining (i) whether the reference is within the field of the invention's endeavor; or (ii) if the reference is not within the field of the endeavor, whether the field of the reference is reasonably pertinent to the particular problem. *Id.*

In *In re Oetiker*, the Applicant claimed an improvement in a hose clamp which differed from the prior art in the presence of a preassembly "hook" which maintained the preassembly condition of the clamp and disengaged automatically when the clamp was tightened. *Id.* The Board relied upon a reference which disclosed a hook and eye fastener for use in garments, reasoning that all hooking problems are analogous. *Id.* The court held that the reference was not within the field of applicant's endeavor, and was not reasonably pertinent to the particular problem with which the inventor was concerned because it had not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected to look to fasteners for garments. *Id.*

Here, the Applicant, seeking to solve the problem of reducing the magnitude of stray magnetic fields near an optical assembly, would not be expected to look to sputtering and/or etching devices and methods for sputtering and/or etching, regardless of whether such processes involve fabrication of semiconductors. Therefore, Fu and Shamouilian et al. are considered to be nonanalogous art, and are not properly cited as references to reject claims 1-8, 12-24, 28-40, 44-51, and 55-58. As a consequence, the Applicants submit that the rejection of claims 1-8, 12-24, 28-40, 44-51, and 55-58 under 35 U.S.C. § 103(a) is improper, and that claims 1-8, 12-24, 28-40, 44-51, and 55-58 are

in condition for allowance. Further, because claims 9-11, 25-27, 41-43, and 52-54 depend directly or indirectly from claims 1-8, 12-24, 28-40, 44-51, and 55-58, they are likewise believed to be patentable and in condition for allowance.

Additionally, the Applicant respectfully submits that the combination of cited references does not teach or suggest the features of many of the rejected claims. For example, the Patent Office states in its rejection that regarding “claims 2-8, 19-24, 35-40, and 48-51, all of the prior art is concerned with redirecting the magnetic field as taught above and will obviously redirect the claimed percentage. Further, the positioning and design of the magnetic shunt is considered obvious to the prior art because the applicant has provided no evidence that differing designs will redirect in a more efficient manner.”

However, an obviousness rejection based on a combination of references must be supported by “objective evidence of record”. *In re Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). In addition, it is insufficient to base such rejection merely on “common knowledge or common sense.” *Id.* With respect to at least some of the claims, the cited references do not provide any sufficient evidence of record to support the rejection of the Patent Office.

For example, claims 4 and 20 require that “the first magnetic shunt is substantially tubular shaped and substantially encircles at least a portion of the optical assembly.” Somewhat similarly, claims 38 and 49 require the step of “providing a first magnetic shunt that is substantially tubular shaped, the first magnetic shunt substantially encircling at least a portion of the optical assembly.” These features and/or steps are not taught or suggested by the cited combination of references. Thus, claims 4, 20, 38 and 49 are believed to be patentable.

Claims 7 and amended claim 23 require that “the first magnetic shunt redirects at least approximately 10 percent of the magnetic field away from the gap.” Somewhat similarly, claims 8 and 24 require that “the first magnetic shunt redirects the at least approximately 50 percent of the magnetic field away from the gap.” These features are not taught or suggested by the cited combination of references. It is insufficient to merely state that the prior art “will obviously redirect the claimed percentage”, without providing any objective evidence of record from the references. Thus, claims 7, 8, 23 (as amended) and 24 are believed to be patentable.

Additionally, claims 14 and 30 require that “the magnetic shunt assembly includes at least one container magnetic shunt that is positioned along a wall of the container.” Somewhat similarly, claim 55 requires the step of “enclosing the stage with a container and the step of securing the first magnetic shunt to the container.” These features and/or steps are not taught or suggested by the cited combination of references. Thus, claims 14, 30 and 55 are also considered to be patentable.

Allowable Subject Matter

Claims 9-11, 25-27, 41-43, and 52-54 would be allowable, but are objected to as being dependent on rejected base claims. The basis of the objection is believed to have been overcome, having shown the allowability of corresponding base claims 1, 18, 34 and 47 above.

New Claims

New claims 59-91 have been added by this amendment. New claims 59-91 are of a slightly different scope than the previously pending claims. However, in view of the cited references, claims 59-91 are believed to be patentable.

For example, in addition to the description provided above, Kojima et al. teaches that “the magnetic casing 13 in which the motor 14 is enclosed is moved by the use of the movement means 12 in a direction parallel to the principal surface of the turn table 4.” (Col. 4, lines 28-31). In other words, the turn table 4 moves along an axis that is the same as an axis along which the magnetic casing moves. Kojima et al. does not teach or suggest that the magnetic casing 13 is fixedly positioned relative to the axis along which the turn table 4 moves. Moreover, Kojima et al. teaches that the turn table 4 is positioned at one end of the electron beam lens barrel 1, e.g. past the output orifice 1h. Stated another way, the turn table 4 is not positioned between two portions of the lens barrel 1.

In contrast to the cited references, new claim 59 is directed toward a “stage assembly for moving a device for an apparatus, the apparatus including an optical assembly and a gap near the optical assembly, the stage assembly comprising: a stage that retains the device; a mover assembly that moves the stage along a first axis in the

gap, the mover assembly generating a magnetic field; and a first magnetic shunt positioned near the stage, the first magnetic shunt being fixedly positioned relative to the first axis, the first magnetic shunt being made from a magnetically permeable material, the first magnetic shunt providing a low magnetic reluctance path that redirects at least a portion of the magnetic field away from the gap.” These features are not taught or suggested by the cited references. Thus, claim 59 is believed to be patentable. Because new claims 60-75 depend directly or indirectly from claim 59, they are likewise believed to be patentable.

Further, new claim 76 requires “a stage that retains the device; a mover assembly that moves at least a portion of the stage between the first optical subassembly and the second optical subassembly, the mover assembly generating a magnetic field; and a first magnetic shunt positioned near the stage, the first magnetic shunt being made from a magnetically permeable material, the first magnetic shunt providing a low magnetic reluctance path that redirects at least a portion of the magnetic field away from the gap.” These features are not taught or suggested by the cited references. Thus, claim 76 is considered to be patentable. Because new claims 77-91 depend directly or indirectly from claim 76, they are also considered to be patentable.

Remaining References

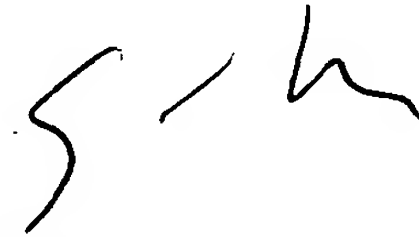
The references cited by the Examiner, but not relied on for the rejection of claims, have been noted. The remaining references are no more pertinent than the applied references, therefore, a detailed discussion of these remaining references is deemed unnecessary for a full and complete response to the Office Action.

Conclusion

In conclusion, Applicant respectfully asserts that claims 1-91 are patentable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-456-1951 for any reason that would advance the instant application to issue.

Dated this the 14th day of August, 2003.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'S. G. Roeder', is positioned above the printed name.

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